

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
25 January 2001 (25.01.2001)

PCT

(10) International Publication Number  
**WO 01/06646 A1**

(51) International Patent Classification<sup>7</sup>: H03H 9/15

(21) International Application Number: PCT/FI00/00652

(22) International Filing Date: 18 July 2000 (18.07.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
991619 19 July 1999 (19.07.1999) FI

(71) Applicant (for all designated States except US): NOKIA  
MOBILE PHONES LTD. [FI/FI]; Keilalahdentie 4, FIN-  
02150 Espoo (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): KAITILA, Jyrki  
[FI/FI]; 4. Linja 14 B 45, FIN-00530 Helsinki (FI). YLIL-  
AMMI, Markku [FI/FI]; Peräsin 2A, FIN-02320 Espoo  
(FI). ELLÄ, Juha [FI/FI]; Kääriäisentie 5, FIN-24800 Ha-  
likko (FI).

(74) Agent: BERGGREN OY AB; P.O. Box 16, FIN-00100  
Helsinki (FI).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,  
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

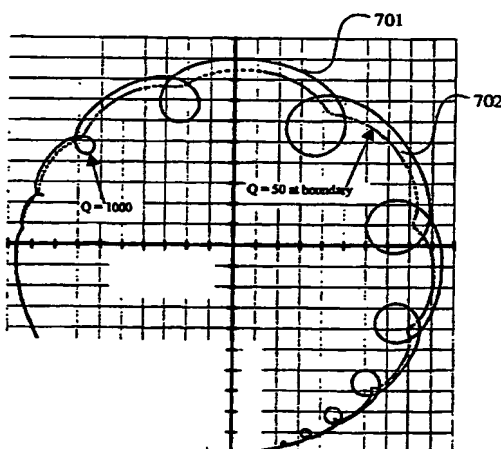
(84) Designated States (regional): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian  
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European  
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,  
IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG,  
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

## Published:

- With international search report.
- Before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments.

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: RESONATOR STRUCTURE AND A FILTER HAVING SUCH A RESONATOR STRUCTURE



(57) Abstract: Resonator structure (600, 800, 810, 820) comprises two conductor layers (110, 120) and a piezoelectric layer (100) in between the conductor layers, and said conductor layers and piezoelectric layer extend over a first area of the resonator structure, which first area is a piezoelectrically excitable area of the resonator structure. The resonator structure is characterized in that it is arranged to have a zone (603, 801, 803, 804), which confines a center area (604, 802) within the first area of the resonator, and the layer structure in the zone is arranged to be such that piezoelectrically excited vibrations are dampened more effectively in the zone than in the center area.

WO 01/06646 A1